AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A tilt controlling method comprising the steps of:

detecting a track of a focus error for maximizing an RF signal or minimizing jitter when a focus is on;

detecting the maximum value and the minimum value of the focus error; and

calculating a variation per track of the focus error to control the tilt using the variation.

2. (Original) The tilt controlling method according to claim 1, further comprising the step of calculating a variation per track of the maximum value and the minimum value of the focus error to detect a normalized DC component.

3. (Original) The tilt controlling method according to claim 2, wherein a tilt reference is varied as much as the variation per track to control the tilt.

4. (Original) The tilt controlling method according to claim 1, further comprising the step of detecting a DC component using the maximum value and the minimum value of the focus error to control the tilt, wherein the

maximum value and the minimum value of the focus error can be applied separately or at the same time.

5. (Previously Presented) The tilt controlling method according to claim 1, wherein said step of calculating a variation per track of the focus error to control the tilt using the variation comprises the steps of:

calculating the variation per track of the focus error;

detecting a surface vibration from trembling of a disk; and

normalizing the variation per track of the focus error and the surface vibration to control the tilt.

6. (Original) The tilt controlling method according to claim 5, wherein a normalized value and a reference value due to tilt initialization are considered to control the tilt.

7. (Previously Presented) The tilt controlling method according to claim 6, wherein the reference value due to tilt initialization is obtained from an FE track at a point where an RF envelope peak has the maximum value or a jitter has the minimum value.

8. (Previously Presented) The tilt controlling method according to claim 5, wherein a normalized value is proportional to time in a case of constant linear velocity.

9. (Previously Presented) The tilt controlling method according to claim 5, wherein a normalized value is proportional to length in a case of constant angular velocity.

10. (Original) A tilt controlling method comprising the steps of:

wobbling a tilt driving block at a certain frequency;

obtaining an FE track at a point where a RF signal has the maximum value; and normalizing the detected FE track.

11. (Currently Amended) A tilt controlling apparatus of an optical record medium, comprising:

a RF and servo error producing unit for producing RF and servo error signals from an electric signal outputted from an optical pickup unit;

a servo controlling unit having a tilt error detecting and controlling block for receiving RF and focus error signals outputted from said RF and servo error producing unit to produce DC and AC values about the tilt initialization and about an optical disk; and

a servo driving unit for controlling said optical pick-up unit in response to a signal of said servo controlling unit.

12. (Original) The tilt controlling apparatus according to claim 11, wherein said tilt error detecting and controlling block includes:

a RF peak detecting block for detecting the peak of an RF envelope;

a detecting block for detecting the maximum and minimum values of a focus error per one rotation of a disk; and

a tilt controlling block for controlling the tilt using the RF signal and an FE signal.

13. (Withdrawn) A method for detecting tilt controlling reference voltage, comprising the steps of:

wobbling a tilt driving unit at a certain frequency as a focus servo and a tracking servo are on; and

detecting a reference voltage of a tilt drive control track at the peak of an RF envelope.

14. (Withdrawn) A tilt controlling method, comprising the steps of:

wobbling a tilt driving unit at a certain frequency;

detecting an envelope value of an RF high-frequency signal outputted from an optical pick-up;

obtaining a tilt control track at a point where the envelope value of the RF high-frequency signal has the maximum value to adjust an offset of a tilt controller for initialization; and

generating a signal for operating a tilt servo to control the tilt.

15. (Withdrawn) The tilt controlling method according to claim 14, wherein in setting the tilt control track, a point where the envelope value of the RF high-frequency signal is rotated for at least one time to average the maximum/minimum values of the tilt control quantity.

16. (Withdrawn) The tilt controlling method according to claim 14, wherein the tilt is controlled in such a direction that an RF envelope value has the maximum value.

17. (Withdrawn) The tilt controlling method according to claim 16, wherein the direction of tilt control is determined according to a differential value at each point of the RF envelope so that the RF envelope has the maximum value.

18. (Withdrawn) The tilt controlling method according to claim 16, wherein a quantity of the tilt control is determined according to a differential value at each point of the RF envelope so that the RF envelope has the maximum value.

19. (Withdrawn) The tilt controlling method according to claim 14, wherein the RF envelope is controlled to have plus phase, wherein a control phase is minus when the RF envelope has the maximum value, and the control phase is plus when the RF envelope has the minimum value.

20. (Withdrawn) A tilt controlling apparatus comprising:

a RF producing unit for producing an RF signal from an electric signal outputted from an optical pick-up;

a RF envelope detecting unit for detecting an envelope of the RF signal;

a peak window unit for outputting a window signal when the RF envelope has the maximum value; and

a servo control means having a differentiator for differentiating the detected RF envelope value to provide a controlling direction of the tilt and a tilt controller for controlling a tilt controlling unit in response to signals from said differentiator and said window unit.